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Journal: Journal of Substance Abuse Treatment

Working Title: A systematic review of the relationship between staff perceptions of organisational readiness to change and the process of innovation adoption in substance misuse treatment programmes

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Abstract

Background

Translating innovation, such as contemporary research evidence, into policy and practice is a challenge, not just in substance misuse treatment programmes, but across all spheres of healthcare. Organisational readiness to change (Weiner et al., 2008) has been described as an important concept in substance misuse treatment delivery.

Aims

To conduct a systematic review of the evidence on the relationship between staff perceptions of organisational readiness to change (ORC) and the process of innovation adoption in substance misuse treatment programmes. Innovation was considered to be the process of developing new approaches or ways of working. The process incorporated: exposure to, adoption, implementation and practice of new ways of working in substance misuse treatment programmes.

Methods

A systematic review was conducted in accordance with PRISMA guidelines. MEDLINE, PsychINFO, SOCindex and Business Source Complete were searched for English language only peer reviewed publications from 2001 to 2016. All study designs were considered eligible.

Results

A total of 1,585 papers were retrieved after a removal of duplicates and fourteen papers were identified as eligible for inclusion. The majority of the studies were quantitative (n=11), the remaining studies used a mixed methods approach (n=3). While there was a heterogeneity of study methodologies, all papers utilised a tool developed by Lehman et al. (2002) to measure ORC. Organisations with poorer resources and higher programme needs were more motivated to adopt new innovations, but are less likely to be exposed to training. A good organisational climate, including openness to change, staff cohesion and mission clarity are important in sustaining the process of innovation adoption. Good institutional resources such as access to e-communication not only increase exposure to training but also increases the likelihood of sustained innovation adoption. Staff characteristics, such as having more influence with peers or having greater adaptability or efficacy are also important. The frequency of exposure to training is important

Conclusions

Substance misuse treatment programmes with high needs and poorer resources are more motivated to change but are less likely to have exposure to training. These types of programmes are likely to be less capable of supporting the process of innovation adoption. Particular resources such as having internet access have an influence on exposure to and adoption of innovations. Staff attributes, such as being influential in the workplace are also important. Measuring ORC in conjunction with other variables can provide planners with important information and can support the effective allocation of resources. A positive organisational climate may support the sustained adoption of innovations post training, but there is minimal evidence to demonstrate how ORC, which is a dynamic concept, can influence the sustained use of innovations over time. Future directions should include more well designed prospective longitudinal quasi-experimental studies.

Keywords: *Organisational readiness to change, innovation, dissemination, training, evidence based practice, substance misuse*

1. Introduction

Over the last two decades, treatment programmes have been challenged by diminishing resources while simultaneously, the scientific base on which treatment is based has changed substantially, and the range of substances available and patterns of use have broadened significantly (Barlow, 2010, Simpson and Dansereau, 2007, Roche, 2001). The context in which healthcare organisations operate is dynamic and systems must constantly change to meet demands on resources, adapt to new practices, and respond to significant shifts in policy (Bazzoli et al., 2004). Whatever the type or stimulus for a given change, if organisations are to respond effectively to rapidly changing and turbulent environments, then engaging successfully with ongoing change and innovation is essential for survival (Holt and Vardaman, 2013, Cinite et al., 2009, Armenakis et al., 1993). Organisational change can be described as any modification in organisational structure, composition or behaviour (Bowditch et al., 2008). Managing effective organizational change in healthcare is challenging. Depending on how changes are measured in the healthcare context, the failure rate for implementing change in organisations ranges from 30% to 90% (Jacobs et al., 2015). However, the type of change and the context of organisational change is important as it influences whether or not a change will be successful or not (Rafferty and Simons, 2006). Failure to implement successful organisational change is frequently attributed to a failure to establish sufficient organisational readiness (Rafferty et al., 2013, Vakola, 2013, Kotter, 1996). In a seminal paper, Weiner (2009,p6) describes organisational readiness as ‘a shared psychological state in which organisational members feel committed to implementing an organisational change and confident in their collective abilities to do so’. Organisational readiness is interpreted as a multi-dimensional concept involving not only different organisational levels but also cognitive and affective components which can be described in colloquial terms as individuals and/or groups being *willing* and *able* to implement change (Weiner et al., 2008). Understanding this concept is important, as it has been suggested that a failure to establish sufficient readiness accounts for over half of unsuccessful efforts in organisational change (Kotter, 1996). When readiness to change is favourable, organisational members are more likely to show initiative, work harder and co-operate, which in turn results in more effective implementation and continuation of change (Holt and Vardaman, 2013, Weiner et al., 2008). In the substance misuse treatment field, there is a paucity of research on the implementation of change and the adoption of new practices based on scientific evidence (Garner, 2009, Miller et al., 2006). In recent years, ORC has emerged as one of the most important concepts in terms of innovation adoption or knowledge transfer (Gagnon et al., 2014).

In substance misuse treatment programmes, it has been demonstrated that organisational readiness as perceived by staff, can have a significant influence on the process of adopting new innovations or the utilisation of evidence based practice (Lundgren et al., 2012, Simpson et al., 2007). More specifically, in the context of introducing new innovations and change, staff perceptions about the characteristics of organisations are an important factor in determining success (Lundgren et al., 2013, Lehman et al., 2002). The programme change model initially described by Simpson (2002) and later refined by Simpson and Flynn (2007) and Lehman et al. (2011) includes a four stage model of programme change which relates to the adoption of innovations; *training* (e.g. exposure to new innovations), *adoption* of the new practice (representing a decision taken to adopt and/or to take action to do so), *implementation* (sustained support for the change effort) and finally *practice* where the change becomes standard practice. It is most common for researchers to discuss the process of innovation adoption in stages such as these (Garner, 2009). These four interdependent process components inevitably overlap. This systematic review will examine empirical papers which examine the relationship between organisational readiness to change and any of the four stages of innovation adoption in substance misuse treatment services.

2. Methods

A systematic literature search was performed following PRISMA (Preferred reporting items for systematic reviews and Meta-analysis) guidelines (see Figure 1. for PRISMA flow diagram). The search strategy included keywords which related to three search categories: (i) readiness, change, innovation, implementation (ii) organisations, teams (iii) substance misuse treatment. These terms were combined using the Boolean terms AND/OR as appropriate (see Appendix 1 for search strategy).

2.1 Identification of eligible studies

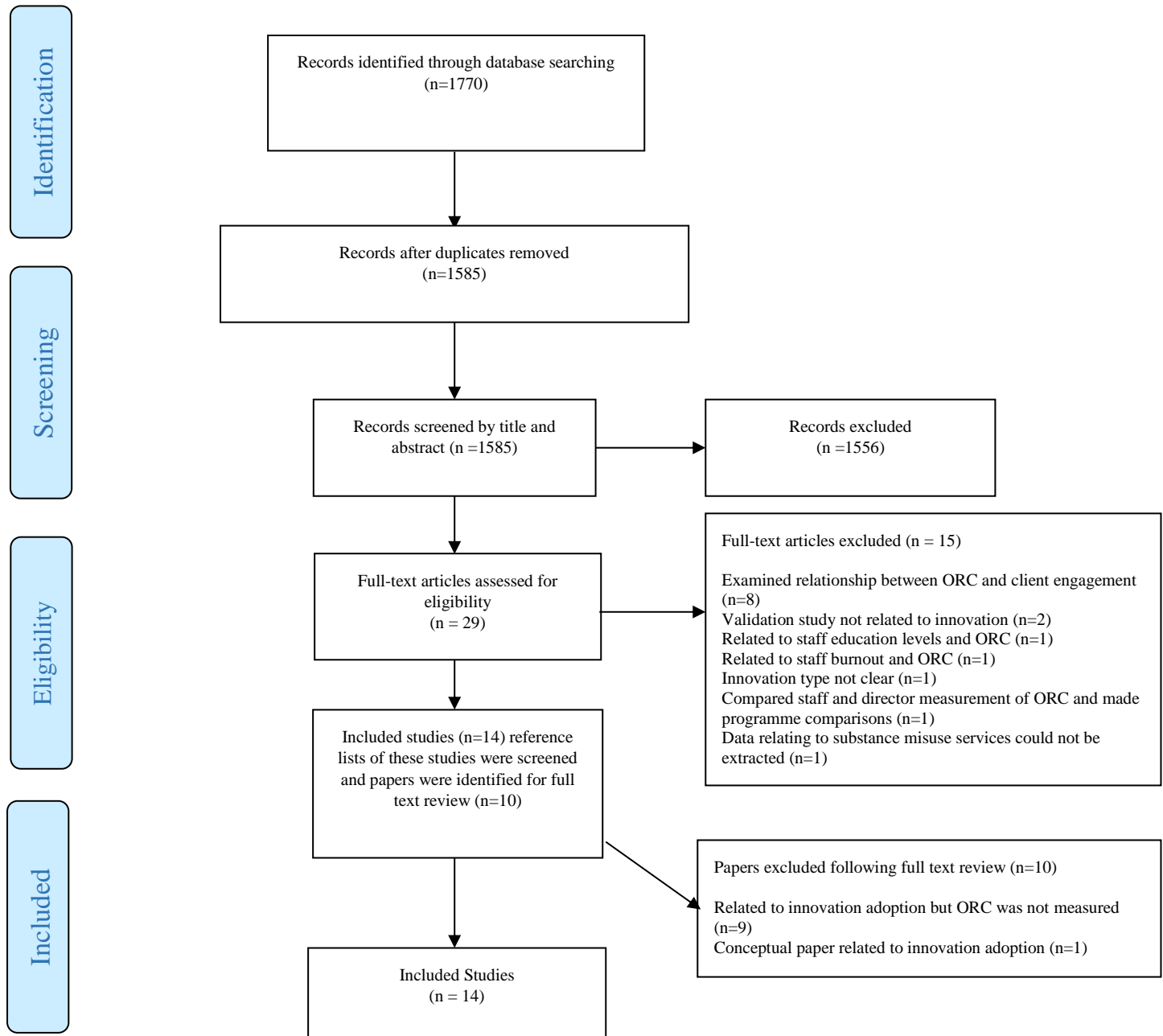
Electronic data bases MEDLINE, PsychINFO, SOCindex and Business Source Complete were searched to identify relevant peer reviewed academic papers published in the English language between 2001 and 2016. Electronic data base searching generated 1770 articles which were added to a reference manager database and after duplicates were removed 1585 articles remained. Two investigators (AH,PK) independently screened all papers by title and abstract and appraised the full text of 29 papers. Reference lists of included papers were also checked for potential papers, and a further 10 articles were subject to full text review, but none of these met the inclusion criteria for this paper. A third reviewer (JH) was available as an arbiter for resolving discrepancies if necessary.

Study designs where organisational readiness to change in adult substance misuse treatment programmes was a primary focus were included where they related to any of four stages of innovation adoption; *training*, *adoption*, *implementation* and *practice* (Lehman et al., 2011, Simpson and Flynn, 2007). Innovation, which involved organizational change, was interpreted as ‘the process of developing new approaches, technologies and ways of working’ (Kaya et al., 2015,p1676). Due to differences in policy frameworks and funding streams, studies aimed exclusively at adolescent or mental health treatment services were not included. Study protocols, studies investigating construct validity or psychometric properties of instruments, theoretical papers and pilot studies; where data pertaining to organisational readiness to change could not be extracted were also excluded. Included papers (n=14) were thoroughly assessed and categorised in accordance with the stage of the innovation adoption process to which they most closely related. Data tables were developed with headings which would incorporate the main findings in the papers and were separated according to the most relevant stages of innovation adoption. A narrative synthesis was conducted using data from the completed tables and important findings from each paper.

2.2 Quality Appraisal

Quality appraisal tools in systematic reviews can increase rigour and reduce the risk of bias (Sanderson et al., 2007). Two investigators (PK,KD) independently quality assessed the included papers. The NIH Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (National Heart Lung and Blood Institute, 2016) was used and the Cochrane Collaboration for assessing risk of bias for RCT’s (Higgins et al., 2011) was used to assess the quality of the RCT. The methodological quality of the included studies was appraised based on their scientific rigour and were graded according to fourteen criteria for all papers except the RCT. A score was then calculated and the quality of the studies was ranked as either poor (0%) fair (85%) or good (15%). The RCT was assessed as having a low risk of bias.

Figure 1. PRISMA flow chart



3. Results

Following a full text review, fourteen papers met the inclusion criteria for this review. All fourteen studies are summarised in [Table 1](#). Included studies used cross sectional quantitative designs (n=8), mixed methods studies (n=2), a randomised control study (n=1), a cross sectional interventional study (n=1), a longitudinal, prospective quasi-experimental study (n=1) and one study described a quality improvement initiative (n=1). One of the studies was conducted in the UAE with the remainder being conducted in the United States. The majority of studies focused on staff with only two of the studies incorporating patient measures. Studies were conducted across a range of treatment settings. These settings included out-patient prescribing and non-prescribing services as well as in-patient detoxification and residential rehabilitation settings. All fourteen papers measured organisational readiness to change using either an extended or shortened version of an ORC measurement tool developed by Lehman et al. (2002) (see <http://ibr.tcu.edu/forms/organizational-staff-assessments/>). Other tools utilised in the included studies were: the Addiction Severity Index (ASI) (McLellan et al., 1980), Treatment Costs Analysis Tool (TCA) (Flynn et al., 2009), Survey of Structure and Operations (SSO) (Knight et al., 2008), Pre-Training Needs Questionnaire (PTN) (Rowan-Szal et al., 2007), the Workshop Evaluation (WEVAL) (Bartholomew et al., 2007), the Workshop Assessment Follow Up (WAFU) (Bartholomew et al., 2007) and Client Evaluation of Self and Treatment (CEST) (Joe et al., 2002). Demographic information on staff including some measures of burnout and variables relating to programme type were also incorporated into many of the studies.

Reflective of an interdependent 4-stage process of innovation adoption, is that most of the included papers did not focus on an individual stage. Of the fourteen eligible papers, six papers focused principally on training and the adoption of training, while six papers focused principally on adoption and implementation of specified practices (for which training may already have taken place), while two papers described a process of implementation. None of the studies were suitably structured to measure the final stage of innovation adoption, the sustained integration of an innovation into practice. All of the fourteen papers related to more than one stage of the process of innovation adoption, and so to prevent the table from becoming unnecessarily cumbersome, papers were categorised into two groups depending on their focus. Papers that related to training or a training event were categorised into (a) Exposure to and adoption of training, while the remaining papers were categorised as relating to (b) Adoption and implementation of innovations. The two papers which described implementation of a quality improvement initiative were grouped into category (b). Within each classification, studies have been ordered by author and year (Table 1).

The ORC assessment tool (Lehman et al., 2002) of organisational needs and functioning, used in all of these studies, has four domains which include eighteen subscales: (i) *Motivation for change (needs/pressures)*: programme needs, training needs, pressures for change (ii) *Resources*: Offices, staffing, training, equipment, internet (iii) *Staff Attributes*: Growth, efficacy, influence, adaptability (iv) *Organisational Climate*: Mission, cohesion, autonomy, communication, stress, openness for change. Within the eighteen subscales, this tool includes a total of one hundred and eighteen scaling questions. Although all of these studies measured ORC using the tool developed by Lehman et al. (2002) and most of the studies were cross sectional in design, few of the studies were directly comparable in terms of their objectives and methodology. The implication for this was that cross comparison of results was challenging. It is impractical to discuss all of the significant results from the subscales in the fourteen studies included in this paper. Therefore, in most cases, this paper will principally refer to the 4 ORC domains but will discuss subscales where they have special significance or where a shortened version of the ORC tool has been used. See Table 1 for detailed summary of the significant results using subscales. Most of the studies included in this review examine the relationship between ORC domains and various stages of innovation adoption, but it is also important to acknowledge that staff perceptions of the four ORC domains are interdependent (Joe et al., 2007) and this has been reflected in studies which are beyond the scope of this review (Greener et al., 2007). The degree of interdependence between domains is unclear but may warrant further analysis.

3.2 Exposure to and adoption of training

Six papers were ultimately considered to be primarily related to training and the adoption of innovations related to training, these studies explored areas such as training needs or preferences, exposure to training, satisfaction with training or utilisation of training (Lehman et al., 2012, Lundgren et al., 2011a, Courtney et al., 2007, Joe et al., 2007, Rowan-Szal et al., 2007, Simpson et al., 2007). A study by Lundgren et al. (2013) incorporated measures on training but was judged by the authors as being focused primarily on adoption and implementation. Simpson et al. (2007) also focused a significant amount of attention on innovation adoption, but this was in relation to a specific training event, and included important measures of training effectiveness. The six studies that related to training represented a range of outcome measures and methodologies, but the approach taken by Courtney et al. (2007) was unique in that they utilised ORC measurements, both as a feedback for programme directors in a training workshop, but also to predict engagement in a follow up quality improvement initiative.

Joe et al. (2007) established that there are casual relationships between the different ORC domains when he incorporated staff perceptions of organisational climate and staff characteristics to identify three counsellor types: isolated, integrated and exceptional. Joe et al. (2007) found that poorer staff perceptions in the motivation for change and the institutional resources domain were also predictive of counsellor types, with the isolated group having the least favourable scores. The isolated group was significantly less likely to have had exposure to training than the other groups. Similar findings are supported in other studies. In programmes where staff scored highly in motivation for change domain, and identified poorer institutional resources, staff were also less likely to have had exposure to training (Lehman et al., 2012). Notably, access to e-communication was related to both exposure to and utilisation of training (Lehman et al., 2012). In a seminal paper, Lehman et al. (2002) first found that higher programme readiness for change were associated with poorer programme ratings in the motivation for change domain, and the results in this review support this finding. Deficits identified in this domain were related to staff having more specific training needs identified, and a higher preference for training in scientifically based approaches (Rowan-Szal et al., 2007, Lundgren et al., 2011a), but also predicted the likelihood of staff engaging in a change initiative subsequent to a training event (Courtney et al., 2007). Staff who perceive themselves as having more adverse working conditions, not only have a greater desire for change but can also identify more specifically, at least through training requirements, how some of that change can occur. As with clients who access these services, discrepancy between real and more favourable conditions can provide motivation to change but, typically, the opportunities for training in these programmes is limited.

Perceptions of staff and programme directors may not always concur and this is a factor that is also worthy of consideration. Programme directors who viewed their organisations as having higher needs, but also had less favourable measurements of organisational climate and poorer staff attributes, also believed that their staff would in fact, be more resistive to innovations (Lundgren et al., 2011a). This perception of programme directors was not explored in practice, but is indicative of a possible lack of convergence between staff and programme directors when assessing ORC. Staff also express a greater preference for scientifically based training where they see themselves as having greater attributes, such as opportunities for growth, adaptability, greater efficacy and in particular more influence (Lehman et al., 2012, Lundgren et al., 2011a, Courtney et al., 2007). This was attributed to their belief that their personal attributes will allow them to adopt these interventions in practice subsequent to a training event. Staff measurements of their programmes climate, specifically where they saw their organisations as having a greater openness to change is an important predictor of staff support for scientifically based training (Lundgren et al., 2011a). As with appraisal of their own skillsets and attributes, staff support for scientifically based innovations is conditional on their appraisal of anticipated programme support for training implementation. These findings are consistent with the conceptual interpretations of ORC (Weiner et al., 2008).

Having better programme resources and better staff attributes is also related to higher training satisfaction with training and lower barriers for adoption (Rowan-Szal et al., 2007). The organisational climate domain is particularly important in determining the success of innovation adoption. Satisfaction with training has been linked to training adoption, and is higher in programmes which have a more favourable organisational climate (Joe et al., 2007, Simpson et al., 2007). In addition to this, the organisational climate domain predicts how successfully training can be adopted, and it is strongly related to the likelihood of engaging in the process of organisational change (Courtney et al., 2007, Joe et al., 2007). Simpson et al. (2007) not only describe a positive relationship between organisational climate and training adoption but also identify trends which relate organisational climate with training satisfaction, adoption and improved client outcomes.

Other findings in these studies also have important implications, not only when planning or executing training, but also when recruiting staff. Staff with higher workloads or more stress are significantly less capable of supporting new innovations (Lehman et al., 2012). Those who were longer in their positions, had higher burnout rates or had more contact with clients were more likely to report barriers in training adoption (Lehman et al., 2012). Staff who identify with their colleagues and who feel a part of a professional community are more likely to have been exposed to training and to implement it (Lehman et al., 2012). Recruiting staff with higher educational levels is important in terms of supporting training adoption, but it is unknown as to what extent this can influence programme cohesion and staff consensus regarding the process of innovation adoption in organisations with a diverse range of employees (Lundgren et al., 2011a, Courtney et al., 2007). While resources directly affect innovation adoption, how finances are allocated also appears to have some influence on exposure to, and utilisation of training, with smaller and more poorly financed programmes being at a disadvantage (Lundgren et al., 2012).

3.3 Adoption and implementation of innovations

Eight studies focused on the adoption and implementation of treatment innovations. Four of these studies were cross sectional surveys which examined staff views on the utility of, levels of modifications to, and barriers in implementing evidence based practice (Lundgren et al., 2013, Lundgren et al., 2012, Fuller et al., 2007, Lundgren et al., 2011b). A mixed methods study by Henry et al. (2010) assessed staff attitudes to a proposed treatment innovation using qualitative interviewing and ORC measurements, while two studies described the process of implementation of new innovations where ORC was measured and reportedly influenced this process, but the utility of the ORC tool in these descriptions is not clear (D'Ambrosio et al., 2006, Elarabi et al., 2014). Finally, an RCT by Crits-Christoph et al. (2010) primarily focused on a trial of a patient feedback mechanism where ORC was a dependent variable. This RCT did not yield any significant results in relation to ORC.

More favourable ratings in all ORC domains were associated with positive attitudes towards treatment innovations and less perceived barriers in terms of their implementation (Lundgren et al., 2012, Fuller et al., 2007). Programmes with higher needs in the motivation for change domain reported more support for the use of evidence based practice but also greater barriers in their implementation (Lundgren et al., 2012, Fuller et al., 2007). High stress levels in particular in the organisational climate domain, were associated with greater barriers for the implementation of evidence based practice (Lundgren et al., 2012). These are findings which are consistent with papers which were previously related to training exposure and adoption (Rowan-Szal et al., 2007, Lundgren et al., 2011a). A notable finding, is that having better access to e-communication was of particular importance for supporting the use of evidence based practices (Lundgren et al., 2011b, Fuller et al., 2007). This finding is supported by studies discussed previously relating to training exposure and adoption (Lehman et al., 2012). For staff, having ease of access to a source of training and information such as the internet, has an influence on both innovation exposure and adoption.

Another important facilitator and inhibitor of innovation adoption depending on the context, was related to role of influence in the staff attributes domain. For both programme directors and staff, having more influence (and also more growth opportunities for directors) was associated with greater support for scientifically based treatment, while staff who reported having more influence also reported making more modifications to evidence based practice (Lundgren et al., 2013, Lundgren et al., 2011b, Fuller et al., 2007). Taken in context and incorporating variables which are not related to the use of the ORC scale, staff who are longer in post, who report less frequently adopting new measures and who have greater influence, also report making more modifications to evidence based practice (Lundgren et al., 2013). Conversely, having less influence and opportunities for growth was associated with more support for non-compliance discharge, which is viewed as a less positive non-evidence based approach (Fuller et al., 2007). The role of staff influence in the process of innovation adoption is important and is worthy of further investigation. Organisational climate was also important, better mission clarity, more staff cohesion and better organisational communication, was important in ensuring that staff support the use of EBP's (Fuller et al., 2007). Conversely, support for a confrontational approach to clients and non-compliance discharge, was higher where, in the organisational climate domain, staff perceived that they had less autonomy and less stress (Fuller et al., 2007). An association between low stress, which should typically be a positive finding, and support for non-compliance discharge and confrontation may be attributable to a lack of pressure to change in these services (Fuller et al., 2007).

The application of ORC findings in the process of implementing quality improvement initiatives remains unclear and studies which report using the ORC tool are largely descriptive and ambiguous in their reporting of specific ORC findings (Elarabi et al., 2014, Henry et al., 2010, D'Ambrosio et al., 2006). However, authors attest to the utility of the ORC tool both in terms of determining if an innovation is set to fail or to determine if an organisation is ready for an initiative or not (Elarabi et al., 2014, D'Ambrosio et al., 2006). In this respect, it has been suggested that findings in relations to organisational climate, specifically in relation to poor team cohesion and high stress can predict the success or failure of an organisation to adopt a new innovation (D'Ambrosio et al., 2006). Additionally, it has been suggested that the ORC tool may be utilised effectively to identify specific programme dynamics prior to exposure of new innovations in order to ensure that training and implementation is tailored to unique organisational needs (Henry et al., 2010).

There were other findings which are not related to ORC but are considered important to the process of innovation adoption. Having an organisational affiliation to a research organisation and having a higher personal level of education were strongly associated with having positive attitudes to the adoption of evidence based treatment (Lundgren et al., 2011b). Staff reporting higher barriers in implementing EBP's were highly correlated with higher modifications to EBP's. Having more frequent training opportunities and greater satisfaction with training related to less modifications (Lundgren et al., 2013). Programmes located in rural areas were also found to have identified more barriers to implementing EBP's than those in urban areas (Lundgren et al., 2012). The type of innovation proposed is also important. Staff identified that they made less modifications to motivational interviewing compared to other EBP's (Lundgren et al., 2013, Lundgren et al., 2012).

4. Discussion

This article systematically reviewed the last fifteen years of scientific research in relation to organisational readiness to change and its relationship with the process of innovation adoption in the substance misuse field. In the case of this review, the four stages of adoption were interpreted to be: exposure, adoption, implementation and integration into practice, although it was not clear how to measure outcomes in each stage of this process. This is reflective of a lack of psychometrically sound measures for the adoption and implementation of treatments (Garner, 2009). The heterogeneity of the studies included in this review and the diversity of findings made cross-comparison of results challenging and conducting a meta-analysis using ORC findings was not possible.

There is also a lack of evidence on how ORC can affect the sustained use of innovations over time, and only one study included in this review focused on this (Simpson et al., 2007). Despite this, based on the findings here, we can conclude that the variables measured using the ORC tool developed by Lehman et al. (2002) are predictive of success or failure in the process of innovation adoption, and conducting an ORC assessment prior to training or implementation of innovations can provide useful information for planners. Using feedback from ORC assessments itself can provide valuable information for strategic planning and feedback in itself could also motivate programmes to change (Courtney et al., 2007). Ultimately, ORC variables could also have significant implications for client outcomes, particularly in relation to measurements of organisational climate. Findings in this review support the view that resources would be more effectively directed to addressing organisational deficits before engaging in a process of innovation adoption.

In a systematic review of 26 eligible instruments to measure organisational readiness for knowledge transfer in healthcare by Gagnon et al. (2014), the ORC tool devised by Lehman et al. (2002), which was used as an extended or shortened version in each of the studies included in this review, was shown to have the highest instrument validity and reliability. This provides a good basis for these studies. The exact nature of the relationship between ORC domains remains unclear and only one study attempted to explore this (Joe et al., 2007). Clarifying this could also help planners to tailor interventions specific to an organisation. The variety of methods employed in these studies testifies to the flexibility of the ORC tool developed by Lehman et al. (2002). However, it should be taken into consideration that in healthcare, researchers have only recently begun to apply models of ORC and there is still a lack of methodological detail around how theoretical perspectives, frameworks and models can be operationalised (Attieh et al., 2013). There is a lack of conceptual clarity in relation to ORC and there is a multitude of interpretations of ORC (Stevens, 2013). Although it has been widely used, the interpretation of ORC by Lehman et al. (2002) is not final. If an ORC assessment is to become the norm when planning training, a valid and reliable brief ORC assessment tool may be more suitable for busy clinical environments (Khan et al., 2014).

Clearly, a multitude of organisational factors mediated the process of innovation adoption and programme change. In programmes where staff express that they have higher motivation for change and poorer resources, they also have more specific training needs and have a greater desire for scientifically based training. The same staff are likely to have exposed to training less frequently, identify that there are more barriers in respect of training implementation, and tend to work in organisations with a climate that is less favourable in terms of supporting the process of innovation adoption. Organisations with poorer resources and are more likely to support inappropriate treatment approaches and be more confrontational towards clients (Fuller et al., 2007). The importance of staff having access to resources such as e-communication in order to facilitate the process of adopting new innovations is clear (Lehman et al., 2012, Lundgren et al., 2012, Fuller et al., 2007). We know that internet based learning in healthcare is at least as affective as traditional training (Sinclair et al., 2016, Cook et al., 2008) and that the frequency of exposure to training and new innovations is also an important determinant of innovation adoption (Lundgren et al., 2013). This review did not find that having access to e-communication increases the frequency of exposure to training, but the benefits of having easy access to up to date information are clear, and the findings on the importance of having workplace internet access is worthy of further exploration.

Staff attributes, such as having more opportunities for growth and in particular having greater influence with peers, are also important factors in the adoption process (Lundgren et al., 2013, Lundgren et al., 2012, Courtney et al., 2007). It may be necessary to tailor the process of innovation adoption to the specific needs of particular staff. Feeling influential in your workplace is important in terms of supporting innovations, but can also have negative implications for more experienced staff. In this context, studies showed that staff who see themselves as having greater attributes will support innovation adoptions more effectively, but experienced staff who see themselves as having more influence with their colleagues staff can show less fidelity to new practices. Where ORC was assessed in other studies, programmes are significantly better at engaging clients where counsellors perceive themselves as having

more influence with peers (Greener et al., 2007, Lehman et al., 2002). The implication is that those who see themselves as having more influence, possess personal attributes with which they can more effectively engage clients (Greener et al., 2007). It is not clear why high influence scores have implications for innovation adoption but this is another finding which merits further attention.

Organisational climate has an important influence on the overall functioning of organisations (Zhang and Liu, 2010). This review certainly supports this conclusion with staff ratings of stress having a particularly important influence. Programmes in which staff have had more favourable views of organisational climate clearly have a particular advantage in terms of adopting new practices. Programmes with favourable organisational climates and less stress are more likely to support the process of innovation adoption and change (Joe et al., 2007, Lundgren et al., 2012). Most importantly, a positive organisational climate has been shown to have implications for sustaining the use of innovations, and improving client outcomes (Simpson et al., 2007). Perceived deficits in organisational climate, such as greater perceived organisational stress can also increase the likelihood of staff wanting to engage in a change process.

Assessing ORC variables in conjunction with other programme or staff related factors should provide richer information for programme design, such as the need to consider the quality of training, staff workloads and stress or the need to hire more educated staff if innovations are to be adopted successfully (Lehman et al., 2012, Lundgren et al., 2012, Lundgren et al., 2011a, Joe et al., 2007). When compared to other areas of healthcare, staff working in substance misuse programmes are at particular risk of high stress and burnout (Oyefeso et al., 2008). Staff who have more reasonable workloads and are not burnout are better suited to supporting the use of innovations. According to this review, more educated staff are also more likely to support innovations in practice, but it is important to consider the staff skill mix in terms of its impact on staff cohesion (Courtney et al., 2007). There are also studies which have shown that those with lower levels of education are more likely to have positive views of organisational climate and resources (Krull et al., 2014). This contradiction provides a direction for future research. Working in a more highly resourced programmes with a favourable organisational climate that is affiliated to a research institution, are much more likely to be successful in supporting new innovations. Programme director's or managers perceptions in ORC domains can be different from those of their staff and this may have implications for planners. Another important finding for planners, is that some innovation types, such as motivational interviewing, are also more likely to be successfully implemented than others.

4.1 Limitations

This review was restricted to examining innovation adoption and ORC substance misuse services only and excluded other areas of healthcare and industry. A review which had a broader scope may have yielded richer information. ORC should not be viewed as a static concept and should be measured over time as organisational circumstances evolve (Rowan-Szal et al., 2007, Stevens, 2013, George and Jones, 2001) and most of the studies included here were cross sectional. Many of the findings in these papers were self-reported and the cross sectional nature of these studies did not allow follow up on the sustained implementation of innovations in practice. Convenience sampling was used and most of the studies were conducted in the US and therefore the generalisability of the results is not clear. More studies of ORC in international treatment settings and could verify if the results discussed here are more widely applicable. It is promising that two international studies which did not fall within the scope of this review, used the Lehman et al. (2002) tool to measure ORC in substance misuse programmes, and have yielded results which were consistent with those found in the US (Simpson et al., 2009, Rampazzo et al., 2006).

5. Conclusion

This review supports the conclusions of other authors that exposure to training, while important, is not sufficient on its own (Miller et al., 2006, Garner, 2009). Despite the heterogeneity of methodologies and outcome measures, this review found that the overall evidence for the use of ORC measurements in predicting the adoption of innovations is promising.

This review supports the view that workforce and organisational characteristics can significantly influence the process of innovation adoption in substance misuse treatment programmes (Glasner-Edwards and Rawson, 2010). In this review, staff perceptions of ORC are significantly associated with the process of innovation adoption. Assessing organisational readiness to change as a part of the process of facilitating effective innovation adoption in addiction treatment is preferable and would help to more effectively target scarce resources (Glasner-Edwards and Rawson, 2010). Unfortunately, there is minimal evidence for utilising ORC measurements in the sustained practice of innovations and in quality improvement initiatives and more work is required in this regard. More methodologically robust prospective longitudinal studies which carefully examine the relationship with ORC and entire process of innovation adoption are needed. In the absence of resources for large studies which would require multivariate analysis, opting for a mixed methods approach to investigating effective innovation adoption may be preferable. Overall, planners should consider addressing infrastructural deficits before wasting resources on training, and overall focus should shift to examine the effectiveness of complete innovation adoption once training is provided.

Appendix 1:

S1:

Terms associated with readiness, organizational change, innovation and implementation

(TI(Capability OR preparedness OR acceptance OR willingness OR capacity OR commitment OR participat* OR chang* OR innovat* OR transform* OR efficienc* OR implement* OR disseminat* OR function* OR effectiv* OR climate OR engagement) OR AB(Capability OR preparedness OR acceptance OR willingness OR capacity OR commitment OR participat* OR chang* OR innovat* OR transform* OR efficienc* OR implement* OR disseminat* OR function* OR effectiv* OR climate OR engagement) AND (TX (Readiness)

AND

S2:

Terms associated with organisations, teams and individuals

(TI(Organiz* OR organis* OR institution* OR team OR individual OR program* OR work* OR service OR system) OR AB(Organiz* OR organis* OR institution* OR team OR individual OR program* OR work* OR service OR system)

AND

S3:

Terms associated with substance misuse and associated treatment services

(TI(cocaine OR crack OR opi* OR heroin OR amphetamine* OR methamphetamine* OR MDMA OR ecstasy OR methylenedioxymethamphetamine OR cannabis OR marijuana OR psychedelic OR mushroom OR glue OR inhalant OR poly* OR substance* OR drug misuse OR drug abuse OR addict* OR dependen* OR drug treatment* OR drug counsel* OR treatment program* OR drug user*) OR AB(cocaine OR crack OR opi* OR heroin OR amphetamine* OR methamphetamine* OR MDMA OR ecstasy OR methylenedioxymethamphetamine OR cannabis OR marijuana OR psychedelic OR mushroom OR glue OR inhalant OR poly* OR substance* OR drug misuse OR drug abuse OR addict* OR dependen* OR drug treatment* OR drug counsel* OR treatment program* OR drug user*)

References

- ADDICTION TECHNOLOGY TRANSFER CENTERS 2004. *The change book: a blueprint for technology transfer*, Kansas City, Missouri, ATTC National Office.
- ARMENAKIS, A. A., HARRIS, S. G. & MOSSHOLDER, K. W. 1993. Creating Readiness for Organizational Change. *Human Relations*, 46, 681-704.
- ATTIEH, R., GAGNON, M.-P., ESTABROOKS, C. A., LÉGARÉ, F., OUIMET, M., ROCH, G., GHANDOUR, E. K. & GRIMSHAW, J. 2013. Organizational readiness for knowledge translation in chronic care: a review of theoretical components. *Implementation Science*, 8, 1-19.
- BARLOW, J. 2010. Messages for the Workforce' in Substance Misuse. The implications of research policy and practice. Research Highlights 53. London and Philadelphia.: Jessica Kingsley Publishers.
- BARTHOLOMEW, N. G., JOE, G. W., ROWAN-SZAL, G. A. & SIMPSON, D. D. 2007. Counselor assessments of training and adoption barriers. *Journal of Substance Abuse Treatment*, 33, 193-199.
- BAZZOLI, G. J., DYNAN, L., BURNS, L. R. & YAP, C. 2004. Two Decades of Organizational Change in Health Care: What Have we Learned? *Medical Care Research and Review*, 61, 247-331.
- BOWDITCH, J., BUONO, A. & STEWART, M. 2008. *A primer on organizational behaviour*, New York, John Wiley and Sons Ltd.
- BROOME, K. M., FLYNN, P. M., KNIGHT, D. K. & SIMPSON, D. D. 2007. Program structure, staff perceptions, and client engagement in treatment. *Journal of substance abuse treatment*, 33, 149-158.
- CINITE, I., DUXBURY, E. & HIGGINS, C. 2009. Measurement of Perceived Organisational Readiness for Change in the Public Sector. *British Journal of Healthcare Management*, 20, 265-277.
- COOK, D. A., LEVINSON, A. J., GARSIDE, S., DUPRAS, D. M., ERWIN, P. J. & MONTORI, V. M. 2008. Internet-based learning in the health professions: a meta-analysis. *Jama*, 300, 1181-1196.
- COURTNEY, K. O., JOE, G. W., ROWAN-SZAL, G. A. & SIMPSON, D. D. 2007. Using organizational assessment as a tool for program change. *Journal of Substance Abuse Treatment*, 33, 131-137.
- CRITS-CHRISTOPH, P., RING-KURTZ, S., MCCLURE, B., TEMES, C., KULAGA, A., GALLOP, R., FORMAN, R. & ROTROSEN, J. 2010. A randomized controlled study of a web-based performance improvement system for substance abuse treatment providers. *Journal of Substance Abuse Treatment*, 38, 251-262.
- D'AMBROSIO, R., LAWS, K. E., GABRIEL, R. M., HROMCO, J. & KELLY, P. 2006. Implementing Motivational Interviewing (MI) in a Non-MI World: A MI Knowledge Adoption Study. *Journal of Teaching in the Addictions*, 5, 21-37.
- ELARABI, H., ALOZAIBI, N., SHAWKY, M., WANIGARATNE, S., SALAS, S., AL HAMED, F., AL MASKARI, B., AL MARZOOQI, S., AL KHAJA, A. & AL GHAFERI, H. 2014. Transforming a residential substance dependence program: experience from the National Rehabilitation Centre, United Arab Emirates. *Mental Health & Substance Use: Dual Diagnosis*, 7, 353-362 10p.
- FLYNN, P., BROOME, K., BEASTON-BLAAKMAN, A., KNIGHT, D., HORGAN, C. & SHEPARD, D. 2009. Treatment costs analysis tool for estimating costs of outpatient treatment services. *Drug & Alcohol Dependence*, 100, 47-53.
- FULLER, B. E., RIECKMANN, T., NUNES, E. V., MILLER, M., ARFKEN, C., EDMUNDSON, E. & MCCARTY, D. 2007. Organizational Readiness for Change and opinions toward treatment innovations. *Journal of Substance Abuse Treatment*, 33, 183-192.
- GAGNON, M.-P., ATTIEH, R., GHANDOUR, E. K., LÉGARÉ, F., OUIMET, M., ESTABROOKS, C. A. & GRIMSHAW, J. 2014. A Systematic Review of Instruments to Assess Organizational Readiness for Knowledge Translation in Health Care. *PLoS ONE*, 9, 1-32.
- GARNER, B. R. 2009. Research on the diffusion of evidence-based treatments within substance abuse treatment: A systematic review. *Journal of Substance Abuse Treatment*, 36, 376-399.
- GEORGE, J. & JONES, G. 2001. Towards a process model of individual change in organisations. *Human Relations*, 54, 419-444.
- GLASNER-EDWARDS, S. & RAWSON, R. 2010. Evidence-based practices in addiction treatment: Review and recommendations for public policy. *Health Policy*, 97, 93-104.
- GREENER, J. M., JOE, G. W., SIMPSON, D. D., ROWAN-SZAL, G. A. & LEHMAN, W. E. 2007. Influence of organizational functioning on client engagement in treatment. *Journal of substance abuse treatment*, 33, 139-147.
- HENRY, S. R., HAGEDORN, H. J., FELD, J. E., GOLDEN, J. F., HORNS, H., KNAPP, H. E. & ANAYA, H. D. 2010. A Formative Evaluation of Organizational Readiness to Implement Nurse-Initiated HIV Rapid Testing in Two Veterans Health Administration Substance Use Disorder Clinics. *Journal of HIV/AIDS & Social Services*, 9, 7-26.

- HIGGINS, J. P., ALTMAN, D. G., GØTZSCHE, P. C., JUNI, P., MOHER, D., OXMAN, A. D., SAVOVIÄ, J., SCHULZ, K. F., WEEKS, L. & STERNE, J. A. 2011. The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. *BMJ: British Medical Journal*, 343.
- HOLT, D. T. & VARDAMAN, J. M. 2013. Toward a comprehensive understanding of readiness for change: The case for an expanded conceptualization. *Journal of Change Management*, 13, 9-18.
- JACOBS, S. R., WEINER, B. J., REEVE, B. B., HOFMANN, D. A., CHRISTIAN, M. & WEINBERGER, M. 2015. Determining the predictors of innovation implementation in healthcare: a quantitative analysis of implementation effectiveness. *BMC Health Services Research*, 15, 142-164.
- JOE, G. W., BROOME, K. M., ROWAN-SZAL, G. A. & SIMPSON, D. D. 2002. Measuring patient attributes and engagement in treatment. *Journal of Substance Abuse Treatment*, 22, 183-196.
- JOE, G. W., BROOME, K. M., SIMPSON, D. D. & ROWAN-SZAL, G. A. 2007. Counselor perceptions of organizational factors and innovations training experiences. *Journal of Substance Abuse Treatment*, 33, 171-182.
- KAYA, N., TURAN, N. & AYDIN, G. 2015. A Concept Analysis of Innovation in Nursing *Procedia - Social and Behavioral Sciences*, 195, 1674-1678.
- KHAN, S., TIMMINGS, C., MOORE, J. E., MARQUEZ, C., PYKA, K., GHEIHMAN, G. & STRAUS, S. E. 2014. The development of an online decision support tool for organizational readiness for change. *Implementation Science*, 9, 1-14.
- KNIGHT, D. K., BROOME, K. M., SIMPSON, D. D. & FLYNN, P. M. 2008. Program structure and counselor–client contact in outpatient substance abuse treatment. *Health Services Research*, 43, 616-634.
- KOTTER, J. 1996. *Leading Change*, Boston, US., Harvard Business Press.
- KRULL, I., LUNDGREN, L. & BELTRAME, C. 2014. Association Between Addiction Treatment Staff Professional and Educational Levels and Perceptions of Organizational Climate and Resources. *Substance Abuse*, 35, 3-6 4p.
- LEHMAN, W., SIMPSON, D., KNIGHT, D. & FLYNN, P. 2011. Integration of treatment innovation planning and implementation: strategic process models and organizational challenges. *Psychology of Addictive Behaviors*, 25, 252-261.
- LEHMAN, W. E., BECAN, J. E., JOE, G. W., KNIGHT, D. K. & FLYNN, P. M. 2012. Resources and training in outpatient substance abuse treatment facilities. *Journal of Substance Abuse Treatment*, 42, 169-178.
- LEHMAN, W. E., GREENER, J. M. & SIMPSON, D. D. 2002. Assessing organizational readiness for change. *Journal of substance abuse treatment*, 22, 197-209.
- LUNDGREN, L., AMODEO, M., CHASSLER, D., KRULL, I. & SULLIVAN, L. 2013. Organizational readiness for change in community-based addiction treatment programs and adherence in implementing evidence-based practices: a national study. *Journal of Substance Abuse Treatment*, 45, 457-465 9p.
- LUNDGREN, L., AMODEO, M., KRULL, I., CHASSLER, D., WEIDENFELD, R., DE SAXE ZERDEN, L., GOWLER, R., LEDERER, J., COHEN, A. & BELTRAME, C. 2011a. Addiction Treatment Provider Attitudes on Staff Capacity and Evidence-Based Clinical Training: Results from a National Study. *American Journal on Addictions*, 20, 271-284.
- LUNDGREN, L., CHASSLER, D., AMODEO, M., D'IPPOLITO, M. & SULLIVAN, L. 2012. Barriers to implementation of evidence-based addiction treatment: A national study. *Journal of Substance Abuse Treatment*, 42, 231-238.
- LUNDGREN, L., KRULL, I., DE SAXE ZERDEN, L. & MCCARTY, D. 2011b. Community-based addiction treatment staff attitudes about the usefulness of evidence-based addiction treatment and CBO organizational linkages to research institutions. *Evaluation and Program Planning*, 34, 356-365.
- MCLELLAN, A. T., LUBORSKY, L., O'BRIEN, C. P. & WOODY, G. 1980. An improved diagnostic instrument for substance abuse patients, The addiction severity index. *Journal of Nervous & Mental Disease*, 168, 26-33.
- MILLER, W. R., SORENSEN, J. L., SELZER, J. A. & BRIGHAM, G. S. 2006. Disseminating evidence-based practices in substance abuse treatment: A review with suggestions. *Journal of substance abuse treatment*, 31, 25-39.
- NATIONAL HEART LUNG AND BLOOD INSTITUTE. 2016. *Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies* [Online]. US Department of Health and Human Sciences. Available: <http://www.nhlbi.nih.gov/health-pro/guidelines/in-develop/cardiovascular-risk-reduction/tools/cohort> [Accessed 12-07 2016].
- OYEFESO, A., CLANCY, C. & FARMER, R. 2008. Prevalence and associated factors in burnout and psychological morbidity among substance misuse professionals. *BMC Health Services Research*, 8, 1.
- RAFFERTY, A. & SIMONS, R. 2006. An examination of the antecedents of readiness for fine-tuning and corporate transformation changes. *Journal of Business and Psychology*, 20, 325-350.
- RAFFERTY, A. E., JIMMIESON, N. L. & ARMENAKIS, A. A. 2013. Change Readiness: A Multilevel Review. *Journal of Management*, 39, 110-135.

- RAMPAZZO, L., DE ANGELI, M., SERPELLONI, G., SIMPSON, D. D. & FLYNN, P. M. 2006. Italian Survey of Organizational Functioning and Readiness for Change: A Cross-Cultural Transfer of Treatment Assessment Strategies. *European Addiction Research*, 12, 176-181.
- ROCHE, A. 2001. What is this thing called workforce development. *Systems, settings, people: Workforce development challenges for the alcohol and other drugs field*, 5-22.
- ROWAN-SZAL, G. A., GREENER, J. M., JOE, G. W. & SIMPSON, D. D. 2007. Assessing program needs and planning change. *Journal of Substance Abuse Treatment*, 33, 121-129.
- SANDERSON, S., TATT, I. D. & HIGGINS, J. P. 2007. Tools for assessing quality and susceptibility to bias in observational studies in epidemiology: a systematic review and annotated bibliography. *International journal of epidemiology*, 36, 666-676.
- SIMPSON, D., JOE, G. & ROWAN-SZAL, G. 2007. Linking the elements of change: Program and client responses to innovation. *Journal of Substance Abuse Treatment*, 33, 201-209.
- SIMPSON, D., ROWAN-SZAL, G. A., JOE, G. W., BEST, D., DAY, E. & CAMPBELL, A. 2009. Relating counselor attributes to client engagement in England. *Journal of Substance Abuse Treatment*, 36, 313-320.
- SIMPSON, D. D. 2002. A conceptual framework for transferring research to practice. *Journal of substance abuse treatment*, 22, 171-182.
- SIMPSON, D. D. & DANSEREAU, D. F. 2007. Assessing organizational functioning as a step toward innovation. *Sci Pract Perspect*, 3, 20-28.
- SIMPSON, D. D. & FLYNN, P. M. 2007. Moving innovations into treatment: A stage-based approach to program change. *Journal of Substance Abuse Treatment*, 33, 111-120.
- SINCLAIR, P. M., KABLE, A., LEVETT-JONES, T. & BOOTH, D. 2016. The effectiveness of Internet-based e-learning on clinician behaviour and patient outcomes: A systematic review. *International Journal of Nursing Studies*, 57, 70-81.
- STEVENS, G. 2013. Toward a Process-Based Approach of Conceptualizing Change Readiness. *The Journal of applied behavioural science*, 49, 333-360.
- VAKOLA, M. 2013. Multilevel readiness to organizational change: A conceptual approach. *Journal of Change Management*, 13, 96-109.
- WEINER, B. 2009. A theory of organisational readiness to change. *Implementation Science*, 4, 1-9.
- WEINER, B. J., AMICK, H. & LEE, S.-Y. D. 2008. Conceptualization and measurement of organizational readiness for change: A review of the literature in health services research and other fields. *Medical Care Research and Review*, 65, 379-436.
- ZHANG, J. & LIU, Y. 2010. Organizational climate and its effects on organizational variables: An empirical study. *International Journal of Psychological Studies*, 2, 189.